

REMARKS

Claims 1, 2, 6-12, 15-23 and 25-31 are now pending in the application. Claims 4 and 5 are withdrawn. New claims 28 through 31 are added. For purposes of reducing excess claim fees, Applicant cancels claims 3, 13, 14, and 24 without prejudice to the subject matter contained therein.

The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 102

Ritchey (U.S. Pat. No. 3,140,584)

Claims 1, 2, 6, 7, 10-12, 15, 16, 19-23, 26, and 27 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Ritchey et al. (U.S. Pat. No. 3,140,584). This rejection is respectfully traversed.

At the outset, Applicant submits that the amendments to claims 1, 12, 21, and 26 have rendered moot all rejections thereof. These claims have been amended to clarify that the bendable duct defines a conduit in which exhaust flow generated by the engine is received and delivered to the nozzle rim. Accordingly, the claimed inventions include a novel bendable duct that provides a primary conduit for delivery of exhaust flow to the nozzle rim, rather than functioning primarily as a seal.

The Office action states that Ritchey discloses a bendable duct 38 for communicating exhaust flow generated by the engine. But Ritchey discloses a passageway 16 for delivery of exhaust to the nozzle 36, where the flexible tube or tubular bellows 38 is separated from extension 40 by a space 47 (column 2 lines 34-35), and direct incidence of the combustion gas upon the flexible tube 38 is prevented by the baffle assembly comprising extension 40 (see, for example, Ritchey column 2, lines 19-22, and column 3, lines 2 through 4). Accordingly, Ritchey thus does not disclose a bendable duct for receiving and delivering exhaust flow to a nozzle.

The presently amended claims 1, 12, 21, and 26 clarify that exhaust gas from the engine is received in the bendable duct (i.e., direct incidence of combustion gas upon the bendable conduit duct). Claims 1, 12, 21, and 26 are therefore distinguished over Ritchey in that the bendable duct of claims 1, 12, 21, and 26 define the primary conduit

through which exhaust flow is delivered to the nozzle rim. The novel design and materials of the bendable duct provide an exhaust conduit that is not disclosed or achieved in Ritchey. As such, Applicant submits that claims 1, 12, 21, and 26 are allowable for at least these reasons.

Ziesloft (U.S. Pat. No. 3,090,198)

Claims 1, 2, 6, 7, 10-12, 15-16, 19-23, 26, and 27 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Ziesloft (U.S. Pat. No. 3,090,198). This rejection is respectfully traversed.

Applicant notes again that the amendments to claims 1, 12, 21, and 26 have rendered moot all rejections thereof. These claims have been amended to clarify that the bendable duct defines a conduit in which exhaust flow generated by the engine is received and delivered to the nozzle rim. Accordingly, the claimed inventions include a novel bendable duct that provides a primary conduit for delivery of exhaust flow to the nozzle rim, rather than functioning primarily as a seal.

The Office Action states that Ziesloft discloses a bendable duct 88 for communicating exhaust flow generated by the engine. But Ziesloft discloses a throat inlet liner 34 and a throat exit liner 50 that define a passageway for delivery of exhaust to the nozzle 14, where the flexible nozzle seal 20 **seals** the joint between the portions against the loss of exhaust gasses (see, for example, Ziesloft, column 1, lines 63 through 65, and column 2, lines 20-22). Ziesloft does not disclose a bendable duct for receiving and delivering exhaust flow to a nozzle rim. Furthermore, Ziesloft's flexible nozzle seal 20 comprises a flexible bellows 88 formed from a thin heat resistant metal alloy (e.g., stainless steel) and a coating of insulation formed in place in the grooves between the bellows ridges to insulate the bellows from the intense heat of the exhaust gases leaking through the space 84 (see, for example, Ziesloft column 3 lines 11 through 20). This further indicates that Ziesloft's flexible nozzle seal is not intended to receive and deliver the exhaust gasses generated by the engine.

The presently amended claims 1, 12, 21, and 26 clarify that exhaust gas from the engine is received in the bendable duct (the duct is thus directly exposed to the intense heat of the combustion exhaust flow, and not only a portion leaking through a space).

Claims 1, 12, 21, and 26 are distinguished over Ziesloft in that the bendable duct of claims 1, 12, 21, and 26 defines the primary conduit through which exhaust flow is delivered to the nozzle rim. The novel design and materials of the bendable duct provide an exhaust conduit that is not disclosed or achieved in Ziesloft. As such, Applicant submits that claims 1, 12, 21 and 26 are allowable for at least these reasons.

REJECTION UNDER 35 U.S.C. § 103

Crabill (U.S. Pat. No. 3,270,505) in view of Martin (U.S. Pat. No. 4,350,297)

Claims 1, 2, 6, 7, 10, 11, 12, 15, 6, 19-23, 26, and 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Crabill et al (U.S. Pat. No. 3,270,505) in view of Martin (U.S. Pat. No. 4,350,297). This rejection is respectfully traversed.

The Office action states that Crabill discloses a bendable duct 54 for communicating exhaust flow generated by the engine. But Crabill discloses a seal 54 having a bellows construction that functions merely as a **seal** or closure structure to maintain an undisturbed exhaust stream, where a space between exhaust port 26 and throat 32 of nozzle 30 defines an exhaust flow path (see, for example, Crabill column 3, lines 10 through 21). Crabill does not teach or suggest a bendable duct intended to directly receive exhaust flow and deliver the exhaust flow to a nozzle. Instead, Crabill teaches a seal 54 positioned away from the exhaust port 26 and throat 32 that serves the function of sealing against loss of exhaust flow similar to the sealing members in Ritchey and Ziesloft discussed above.

The presently amended claims 1, 12, 21, and 26 clarify that exhaust gas from the engine is received in the bendable duct (the bendable duct receives exhaust flow directly from the outlet of the engine, and delivers the exhaust flow to the inlet of the nozzle rim). Claims 1, 12, 21, and 26 are distinguished over Crabill in that the bendable duct defines the primary conduit through which exhaust flow is delivered. The novel design and materials of the bendable duct provide an exhaust conduit not achieved, disclosed, taught, or suggested by Crabill. And, Martin fails to make up for the shortcomings of Crabill. As such, Applicant submits that claims 1, 12, 21, and 26 are allowable for at least these reasons.

Ziesloft (U.S. Pat. No. 3,090,198) in view of Voigt (U.S. Pat. No. 4,892,253)

Claims 1, 2, 6-12, 15-23, and 25-27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ziesloft (U.S. Pat. No. 3,090,198) in view of Voigt (U.S. Pat. No. 4,892,253). This rejection is respectfully traversed.

The Office Action states that Ziesloft discloses a bendable duct 88 for communicating exhaust flow generated by the engine. But Ziesloft discloses a throat inlet liner 34 and a throat exit liner 50 that define a passageway for delivery of exhaust to the nozzle 14, where the flexible nozzle seal 20 **seals** the joint between the portions against the loss of exhaust gasses (see, for example, Ziesloft, column 1, lines 63 through 65, and column 2, lines 20-22). Ziesloft does not disclose, teach, or suggest a bendable duct for receiving and delivering exhaust flow to a nozzle rim.

Furthermore, Ziesloft's flexible nozzle seal 20 comprises a flexible bellows 88 formed from a thin heat resistant metal alloy (e.g., stainless steel) and a coating of insulation formed in place in the grooves between the bellows ridges to insulate the bellows from the intense heat of the exhaust gases leaking through the space 84 (see, for example, Ziesloft column 3 lines 11 through 20). This further indicates that Ziesloft's flexible nozzle seal is not intended to receive and deliver the exhaust gasses generated by the engine.

The presently amended claims 1, 12, 21, and 26 clarify that exhaust gas from the engine is received in the bendable duct (the duct is directly exposed to the intense heat of the combustion exhaust flow, and not only a portion leaking through a space). Claims 1, 12, 21, and 26 are distinguished over Ziesloft in that the bendable duct defines the primary conduit through which exhaust flow is delivered. The novel design and materials of the bendable duct provide an exhaust conduit not achieved, disclosed, taught, or suggested by Ziesloft. And, Voigt fails to make up for the shortcomings of Ziesloft. As such, Applicant submits that claims 1, 12, 21, and 26 are allowable for at least these reasons.

With respect to claims 2, 6, 7, 10, 11, 15, 16, 19, 20, 22, 23, and 27, these claims ultimately depend from independent claims 1, 12, 21, or 26, which Applicant believes to be allowable in view of the above remarks. As such, Applicant submits that claims 2, 6, 7, 10, 11, 15, 16, 19, 20, 22, 23, and 27 are also allowable for at least these reasons.

NEW CLAIMS

With respect to dependent claims 28-31, these claims include additional features of some exemplary embodiments disclosed within the specification. See, for example, paragraphs [0025], [0027], [0029], and [0030] of the application as filed. Accordingly, claims 28-31 are each supported by the application as originally filed, such that no new matter is introduced by the addition of claims 28-31. Claims 28-31 each ultimately depend from independent claim 1 shown above to be allowable. Accordingly, Applicant respectfully submits that claims 28-31 are each in condition for allowance for at least the reasons given above in connection with the independent claim 1. That is, none of the cited patents disclose, teach or suggest, among other things, “a bendable duct defining a conduit in which exhaust flow generated by the engine is received and delivered to the nozzle rim”.

In addition, claims 28-31 are further patentably distinguishable over the cited patents in that the cited patents do not disclose, teach or suggest the additional features required by these claims:

“wherein the bendable duct is made of a material having good strength properties at a temperature of about 1800 degrees Fahrenheit” (as recited in claim 28); or

“wherein the bendable duct material is sufficiently flexible to allow the duct to accept a degree of strain repeatedly without significant loss of strength due to fatigue from repeated bending” (as recited in claim 29); or

“wherein the convoluted bendable duct further includes a liner within the convoluted bendable duct so as to define a generally smooth inner surface along at least a portion of the convoluted bendable duct” (as recited in claim 30); or

“wherein the liner comprises a plurality of segmented petals sized to be slidably movable within the convoluted bendable duct as the convoluted bendable duct is bent” (as recited in claim 31).

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (314) 726-7500.

Applicant believes he does not owe any fee in connection with this filing. If, however, Applicant does owe any such fee(s), the Commissioner is hereby authorized to charge the fee(s) to Deposit Account No. 08-0750. In addition, if there is ever any other fee deficiency or overpayment under 37 C.F.R. §1.16 or 1.17 in connection with this patent application, the Commissioner is hereby authorized to charge such deficiency or overpayment to Deposit Account No. **08-0750**.

Respectfully submitted,

Dated: December 5, 2005

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